mediate, or remote, danger, provided proper dosage and technique, and strict asepsis, are employed.

The results of Radium Therapy in inoperable and recurrent carcinoma of the uterus surpass those of any other known therapeutic agent.

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THE X-RAY TREATMENT OF UTERINE FIBROIDS.*

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The Secretary of the Gynecologic Section, Dr. Alfred Baker Spalding, suggested to me to present a paper on X-ray treatment of fibroids of the uterus at this meeting; and in response to this suggestion, I have the honor to make the following report.

Before I begin my paper proper, I have to offer an apology for making to you, surgeons as most of you are, a plea for non-surgical treatment of uterine fibroids. I am quite aware that in the last decades the operative procedures for the eradication of this ailment have been rendered extremely safe and simple; I have myself operated upon several hundreds of such cases; yet I felt quite interested in this most modern treatment for various reasons, and I shall render to you a short account of my valuation of this mode of treatment based on my own observations.

The number of fibroids of the uterus (fibromyoma uteri) that I have seen during my professional life is quite large, and I have always looked upon these tumors as non-malignant neoplasms, in distinct contra-position to sarcoma, carcinoma and cystoma, malignant neoplasms. Fibroids of the uterus do not endanger the life of the bearer in the way that sarcoma, carcinoma and cystoma do; there is no spreading to neighboring organs; no metastases to remote organs; no general affection of the system, as expressed by the cachexia of patients suffering from malignant disease.

It is the symptoms induced by the presence of fibroids of the uterus, notably pressure and hemorrhages, that will at times cause suffering and put the life of the bearer in danger.

When I was attached, years ago, to a large hospital where every fatal case was autopsied, fibroids of the uterus, sometimes of considerable size, were not infrequently found in women who while alive had absolutely no signs or symptoms that could be referred to them. Every once in a while, when we examine a pregnant woman or after delivery, we find a fibroid present; yet no symptoms had been noticed prior to our examination. The same experience we have on opening the abdomen for adnexal or other disturbances; we find a fibroid of the uterus, yet there were no symptoms traceable to its presence.

In quite a large number of cases of sterility (and sterility in perfect health brought the patient to me), I discovered fibroids of the uterus, which had been there in all probability for years. In all my life I have not seen a single woman succumb to fibroids of the uterus prior to operation.

Fibroids, sometimes of considerable size, will either disappear entirely, or become greatly reduced after delivery.

I have seen a number of women with uterine fibroids enter the menopause: I had occasion to examine these women at different times, and I found in the atrophic, senile uterus, either no trace of a fibroid at all, or small marble-like protuberances, even in women where fibroids of considerable size had formerly been present.

It is important to lay stress on these statements of non-malignancy of the uterine fibroid, because the doctrine has been promulgated and altogether too readily accepted, that a fibroid uterus, whenever found, should be operated upon.

The operation usually performed is hysterectomy; and if we take into consideration the operative mortality ranging from 3 to 5 per cent., the days of more or less suffering right after operation, and the period of invalidism following, we must admit that there exists great disproportion between the severity of the remedy and the rather harmless pathologic condition.

This consideration has induced many physicians to look for other than surgical treatment of uterine fibroids. Many drugs and many methods of treatment have been tried; but with the wonderful progress of abdominal surgery, they have all been discarded.

In the last few years, however, Roentgen rays, and the rays of radio-active substances have been employed with ever-increasing frequency, and in the practice of many gynecologists actinotherapy, raying, has almost entirely supplanted operations for uterine fibroids.

It has been claimed by the opponents of ray therapy that the result of X-rays is nothing more or less than castration—they call it Roentgen castration. This theory is not correct. There is action on the fibroids themselves besides action on the ovaries. I have seen time and again fibroids diminish in size under Roentgenization, while the patient was still menstruating. Roentgenization is therefore not merely symptomatic therapy, but etiologic as well.

So far I have treated twenty-four cases of uterine fibroids with Roentgen rays. Patients under treatment at present are omitted. The cases are all private patients, and a careful selection of examined cases was made. I am indebted to several colleagues for kindly sending patients, where they thought X-ray treatment would be appropriate.

I shall analyze these twenty-four cases according

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to age, kind of tumor, size of tumor, symptoms, complications and results.

Three of the women were under forty; but none of these were under thirty years of age; of the remaining twenty-one, two were over fifty years of age; of the whole number four were unmarried; six of the married women were sterile.

Tumors were all interstitial, sub-serous, multiple (with one exception), varying in size from a walnut to a cocoanut.

Three women complained of pressure symptoms; all the others had disorders of menstruation, ranging from extended regular menstruation to severe hemorrhages, reducing the hemoglobin in four patients to below 40 per cent. (Thalquist).

Complications were noticed: one emphysema pulmonum with bad heart; one pyelitis; one subacute nephritis; three excessive adiposities—one amongst these lipomatosis dolorosa; one venectasia.

In twenty-one cases menopause was established, with complete disappearance of palpable fibroids in two, and more or less diminution of the tumor in all the other cases; relief of pressure symptoms in all three cases.

Two women remained away when the hemorrhages ceased. In one of these cases menses had become regular; in the other irregular light bloody discharges still occur.

In one case I had to perform hysterectomy; here the diagnosis had been erroneous; it was not an interstitial, but a sub-mucous fibroid.

From my observation, I have come to divide the cases of women with fibroids of the uterus in three classes as far as Roentgenization is concerned.

First. Roentgenization is imperatively demanded.

Second. Roentgenization is contra-indicated.

Third. Cases of choice between operation, Roentgenization, observation.

Roentgen rays should be applied to all cases that are grave surgical risks, or where any complication exists that produces any risk at all.

Amongst my cases, the patient with emphysema pulmonum and wretched heart would certainly have been a grave risk; likewise the three exsanguinated women with fatty degeneration of their organs.

Cases of nephritis and pyelitis are not exactly operative risks, but they are decidedly better off without operation.

Patients with severe anemia, bad hearts, lung affections, poor kidneys, phlebectasies, should certainly have the benefit of Roentgen ray treatment.

On the other hand, very large tumors are no subjects for raying; rapidly growing tumors must be operated, because they raise a suspicion of malignancy; wherever the slightest suspicion of malignancy exists operation is indicated, followed by ray treatment.

In this class also belong tumors that show any disposition to grow after the menopause.

Pregnant women should not be treated with X-rays, nor women who wish to retain the ability to bear a child.

Sub-mucous, pedunculated sub-serous tumors are not fit subjects for Roentgenization; likewise women with adnexal tumors coexisting.

There remains a very large number of women with uterine fibroids who offer excellent operative chances, but where symptoms are slight, or where symptoms are lacking altogether. I have tried in former years in a number of such cases, by "watchful waiting" to steer these patients safely into menopause; in some cases I succeeded; others, however, drifted in somebody else's hands and were promptly operated upon, a thing that I could easily have done myself.

In this age of extremely active, polypracmatic medical endeavors, one is compelled to do something, and it seems to me that in certain cases of uterine fibroids Roentgen ray treatment is an excellent substitute either for operation or for therapeutic nihilism.

The advantages of Roentgen treatment over operation are manifest; there is absolutely no mortality from rays, which cannot possibly be said of hysterectomy; there is no ventral hernia, no adhesions, no thrombophlebitis after Roentgen treatment —things that I have seen in my own and in others' practice after operation; no hospital, no staying in bed.

The worst that may happen is that we have erred in our diagnosis, that we have to deal not with a fibroid, but with a fibro-sarcoma; or that the fibroid may be of the intractable kind, submucous fibroid. Then an operation would have to be done instead. The possibility of this occurrence requires a most careful diagnosis, and constant, rigid observation.

Aside from the possibility of failure due to incorrect diagnosis, further drawbacks of Roentgenization have to be mentioned: the symptoms are relieved, the tumors shrink, but do not always disappear; some patients prefer complete removal of the growth even if some risk is incurred. Roentgenization, like all conservative treatment, requires time; some patients prefer quick action. When the patient lives far away from the physician, Roentgenization is impractical.

I have endeavored to give an unbiased opinion in this paper on the status of X-ray treatment of uterine fibroids. In summing up I wish to say: Roentgenization of uterine fibroids forms an excellent addition to our armamentarium; it is not a panacea, must not be used indiscriminately; but if judiciously applied, it will in proper cases save life and spare much suffering.

A STUDY OF THE LUNG REFLEXES IN PULMONARY TUBERCULOSIS.*

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The reflex is the means by which tissues and organs react to their surroundings. A reflex is due to an impulse which is carried over a sensory neuron to its cell in the central nervous system, where it is transmitted either directly or through other nerve cells and their fibers to another cell which through its fibers produces an action. These reflexes may be simple and take place in the same segment of the cord which receives the sensory

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